

REMARKS

Applicant respectfully requests reconsideration. Claims 1-76 were pending in the application with claims 74-76 being withdrawn from consideration. Claims 23-59 and 71-76 have been cancelled without prejudice or disclaimer. Claims 1, 3-5, 12-15, 21 and 60-63 have been amended. Claims 77-113 have been added. No new matter has been added. Claims 1-22, 60-70 and 77-113 are now pending for examination with claims 1, 12, 60, 79, and 88 being independent.

Interview

Applicant thanks the Examiner for the interview conducted on June 6, 2006, in which the Examiner (Alvin T. Raetzsch), Primary Examiner (Stuart Hendrickson), Inventor (Robert Dobbs) and attorney for Applicant (Robert Walat) participated. The discussion included possible amendments to claim 1 and related arguments for distinguishing the prior art including U.S. Patent Nos. 3,737,289 and US 3,840,367 (the Rudy patents) and U.S. Patent Publication No. 2002/0047058 (Verhoff). In particular, Applicant explained why the Rudy patents and/or Verhoff fail to teach or suggest a multi-carbide grinding media having a shape suitable for milling product in a media mill. Applicant is responding to the office action consistent with the discussion during the interview.

Drawings

Applicant is submitting a replacement sheet herewith which includes FIG. 2 to address the objection in the Office Action

Rejection of Claims 1-10, 12-21, 53-54, 60-69 and 71-72

Claims 1-10, 12-21, 53-54, 60-69 and 71-72 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,737,289 and U.S. Patent No. 3,840,367.

Independent claims 1 and 12 have been amended to recite that the grinding media is "shaped suitable for milling product in a media mill". In contrast, the Rudy patents disclose metal cutting tools which are not suitably shaped for milling product in a media mill and, thus, are structurally different than the grinding media being claimed. Though the Rudy '367 patent does mention using

materials for certain applications (e.g., wear-resistant linings in mills) for “milling and drilling” in the mining industry, there is no teaching or suggestion regarding using those materials as grinding media “shaped suitable for milling a product in a media mill” as recited in independent claims 1 and 12. Moreover, as described further below, one of ordinary skill in the art would not have been motivated to use the multi-carbide material as grinding media as claimed.

Independent claim 60 recites the step of milling a product in a media mill using media comprising a multi-carbide material. As noted above, the multi-carbide material in Rudy is not used to mill product in a media mill as recited in claim 60.

Because Rudy fails to teach or suggest each limitation of independent claims 1, 12 and 60, these claims are patentable in view of Rudy. The remaining claims that stand rejected on this ground either have been cancelled or depend from one of the patentable independent claims and, thus, are also patentable.

Accordingly, Applicant respectfully requests withdrawal of the rejection on this ground.

Rejection of Claims 11, 22-52, 55-59, 70 and 73

Claims 11, 22-52, 55-59, 70 and 73 were rejected under 35 U.S.C. 103(a) as being unpatentable over the Rudy patents and further in view of U.S. Patent Publication No. 2002/0047058 (Verhoff).

One of ordinary skill in the art would not have been motivated to combine the teachings in the Rudy patent with the teaching in Verhoff in the manner stated in the Office Action. Specifically, one would not have been motivated to use the multi-carbide material described in the Rudy patent as the grinding media in Verhoff. At the time of the filing date of the present application, conventional wisdom in the art was that materials having the properties (e.g., extremely high wear resistance) of multi-carbide materials would not have been suitable grinding media for milling product in a media mill. If used to mill product in a media mill, conventional wisdom taught that grinding media having such properties would be detrimental to the milling process. For example, such grinding media would be expected to damage the milling equipment and/or fracture one another. Therefore, based on the properties of multi-carbide material, one of ordinary skill in the art would not have been motivated to use multi-carbide material as grinding media.

Applicant further notes that the long time lapse (30+ years) between the Rudy patents (which disclose multi-carbide material in metal cutting tools) and the filing date of the present application without any other reference disclosing use of multi-carbide material as grinding media suitable for milling product in a media mill is further evidence of the non-obviousness of this concept. Certainly, during this time period, much work had been done in the art to examine different grinding media materials. Indeed, one aspect of the present invention, is the realization that multi-carbide material could be used as grinding media suitable for milling product in a media mill.

Because one of ordinary skill in the art would not have been motivated to combine the Rudy patents with Verhoff in the manner stated in the Office Action, Applicant respectfully submits that a prima facie case of obviousness has not been met.

Accordingly, Applicant respectfully requests withdrawal of the claim rejections on this ground.

New Claims

New claims 77 and 78 depend from claim 1 which is patentable is over the cited references for reasons noted above. Thus, these new claims are patentable for at least these reasons.

Independent claim 79 is patentable over the Rudy patents because the Rudy patents fail to teach or suggest grinding media having a substantially spherical shape and suitable for milling product in a media mill. Also, one of ordinary skill in the art would not have been motivated to combine the Rudy patents and Verhoff for reasons noted above, so claim 79 is also patentable over this combination. New claims 80-87 depend from claim 79 and are, thus, patentable for at least these reasons.

Independent claim 88 is patentable over the Rudy patents because the Rudy patents fail to teach or suggest grinding media shaped suitable for milling product in a media mill and having a size of less than 500 microns. Also, one of ordinary skill in the art would not have been motivated to combine the Rudy patents and Verhoff for reasons noted above, so claim 88 is also patentable over this combination. New claims 89-96 depend from claim 88 and are, thus, patentable for at least these reasons.

New claims 97-113 depend from independent claim 60 which is patentable for reasons noted above. Thus, these new claims are patentable for at least these reasons.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: August 22, 2006

Respectfully submitted,

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